Suisun Marsh Monitoring Program
Channel Water Salinity Report
Reporting Period: October 2001

CONTENTS

This report is organized into the following sections and subsections:

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RESULTS

Channel Water Salinity Compliance

State Water Resources Control Board channel water salinity standards for the Suisun Marsh were met at all five compliance stations during October 2001 (Table 1). Compliance with channel water salinity standards was determined for each compliance station by comparing October mean high-tide specific conductance (SC) with their respective standards. The standard for all compliance stations (i.e. C-2, S-64, S-49, S-42, S-21) during October 2001 was 19.0 millisiemens per centimeter (mS/cm). Table 1 lists monthly mean high-tide SC at the compliance stations.

The progressive monthly mean SC for each station is used to track salinity conditions during each month (Figures 1). The progressive mean is calculated for each compliance station by averaging mean high-tide SC for a given day and all previous days of that month. New progressive mean calculations begin at the start of each calendar month.

Delta Outflow

Low Delta outflow occurred in October 2001 (Figure 3). The monthly mean Net Delta Outflow Index (NDOI) for October is listed below:

Month	Mean NDOI (cubic feet per second)
October	4,164

The NDOI is the estimated average daily rate of outflow from the Delta.

Rainfall

Total monthly rainfall at the Waterman Gauging Station in Fairfield during October 2001 is listed below:

Month	Total Rainfall (inches)
October	0.50

Suisun Marsh Salinity Control Gate (SMSCG) Operations

Operations and flashboard/boat lock installations at the SMSCG during October 2001 is summarized below.

Date	Flashboard / boat lock Status	Gate Status
October 1 – 7	Out / closed	Held Open
October 8 – October 21	IN / held open	Operating
October 22 – October 25	IN / closed	Operating
October 26 – October 31	IN/ closed	Operating*

*gate #3 was out of service from October 26-28, 2001. It was stuck closed for 3 days. The gate was fixed and operational on October 29, 2001.

October SMSCG operations included a fish study this year. This year fish passage study included ONLY boat lock modifications, not flashboards. The boat lock gates were tested under the open (phase 2) and closed (phase 3) modes in conjunction with either gate or no gate operations as summarized in the above table.

DISCUSSION

Factors Affecting Channel Water Salinity in the Suisun Marsh

Factors that affect channel water salinity levels in the Suisun Marsh include:

- delta outflow;
- tidal exchange;
- rainfall and local creek inflow;
- managed wetland operations; and,
- operation of the SMSCG and flashboard configurations.

State Water Resources Control Board Order WR 98-6, issued September 25, 1998, authorizes DWR to experimentally test the effects of "modified" flashboards at the SMSCG on salmon behavior. The modifications include gaps between adjacent flashboards. The modified flashboards tend to allow channel water salinity levels in the Marsh to rise somewhat higher than when the standard, full flashboard configuration is

used. Experimentation with the modified flashboards began in October 1998 and may continue periodically through May 2001.

Observations and Trends

Conditions during the Reporting Period

Channel water salinity conditions in the Marsh were mostly driven by Delta outflow during October 2001. Channel water salinity level at both east and west marsh stations started off on the high end (Figures 1 and 2). Due to low Delta outflow during October 2001 and prior months, salinity levels at all compliance stations were somewhat elevated throughout October and closely monitored. Accordingly, both water Projects reduced exports to increase Delta outflow on October 23, 2001. As a result, this action affected salinity reduction at all marsh stations in late October (Figures 1 and 2) and to meet October salinity standards.

Comparison of Reporting Period Conditions with Previous Years

Monthly mean high-tide SC at the compliance and monitoring stations for October 2001 were compared with means for those months during the previous nine years (Figure 4).

Means at all compliance and monitoring stations for October 2001 were higher than means for October 1993 through 2000, and resembles October 1992 end of month salinity conditions, except for S-35.

SUISUN MARSH MONITORING STATIONS AND REPORTING REQUIREMENT

The California Department of Water Resources (DWR) is required to provide monthly channel water salinity compliance reports for the Suisun Marsh to the SWRCB. This requirement is based on SWRCB Water Rights Decision 1641, dated December 29, 1999, and previous SWRCB decisions. Channel water salinity conditions in the Suisun Marsh are determined by monitoring specific electrical conductivity. Specific electrical conductivity is referred to in the reports as "specific conductance".

The locations of all listed stations are shown in Figure 5.

The monthly reports are submitted for October through May each year in accordance with SWRCB requirements. The reports are required to include salinity data from the stations listed below:

Station Identification	Station Name	General Location	Status
C-2	Collinsville	Western Delta	Compliance Station
S-64	National Steel	Eastern Suisun Marsh	Compliance Station
S-49	Beldon's Landing	North-Central Suisun Marsh	Compliance Station
S-42	Volanti	North-Western Suisun Marsh	Compliance Station
S-21	Sunrise	North-Western Suisun Marsh	Compliance Station
60	Mallard Island	South of the Eastern Portion of the Suisun marsh	Reporting Station for Conditions in the Vicinity of Chipps and Van Sickle Islands

Data from the stations listed below are included in the monthly reports to provide information on salinity conditions in the western Suisun Marsh.

Station Identification	Station Name	General Location	Status
S-97	Ibis	Western Suisun Marsh	Monitoring Station
S-35	Morrow Island	South-Western Suisun Marsh	Monitoring Station

Information on Delta outflow, area rainfall, and operation of the Suisun Marsh Salinity Control Gates is included in the monthly reports to provide information on conditions that may affect channel water salinity in the Marsh.

Table 1

Monthly Mean High Tide Specific Conductance at Suisun Marsh Water Quality Compliance Stations

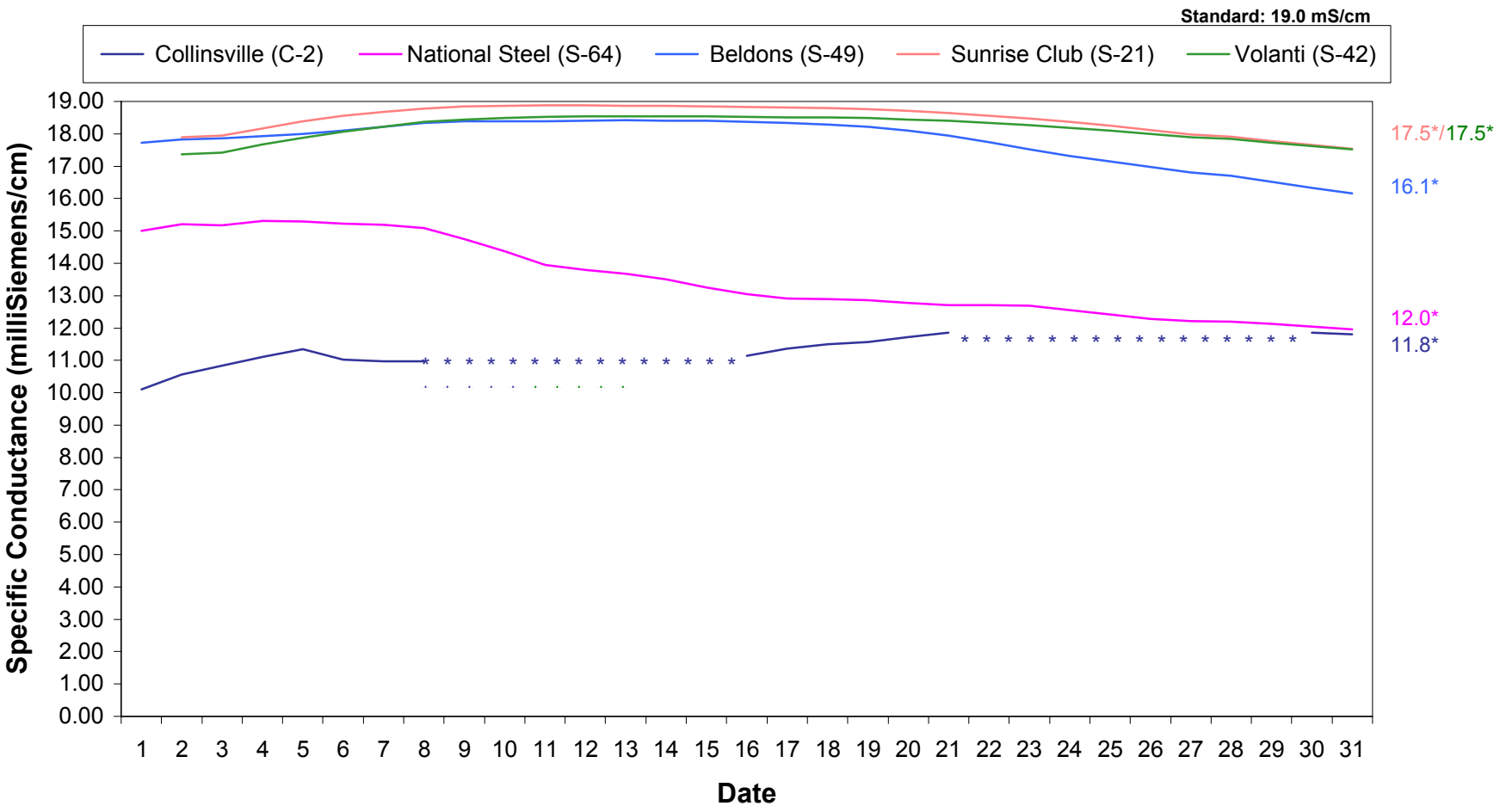
October 2001

Station	Specific Conductance (mS/cm)*
Collinsville, C-2	11.8
National Steel, S-64	12.0
Beldon's Landing, S-49	16.1
Volanti, S-42	17.5
Sunrise Club, S-21	17.5

* = milliSiemens per centimeter

Note: SWRCB standard for October 2001 is 19.0 mS/cm.

Figure 1. Suisun Marsh Progressive Mean High Tide Specific Conductance for October 2001



* = monthly mean specific conductance at high tide.

******Data not available.

Figure 2. Suisun Marsh Daily Mean High-Tide Specific Conductance at Monitoring Stations S-35 and S-97 October 2001

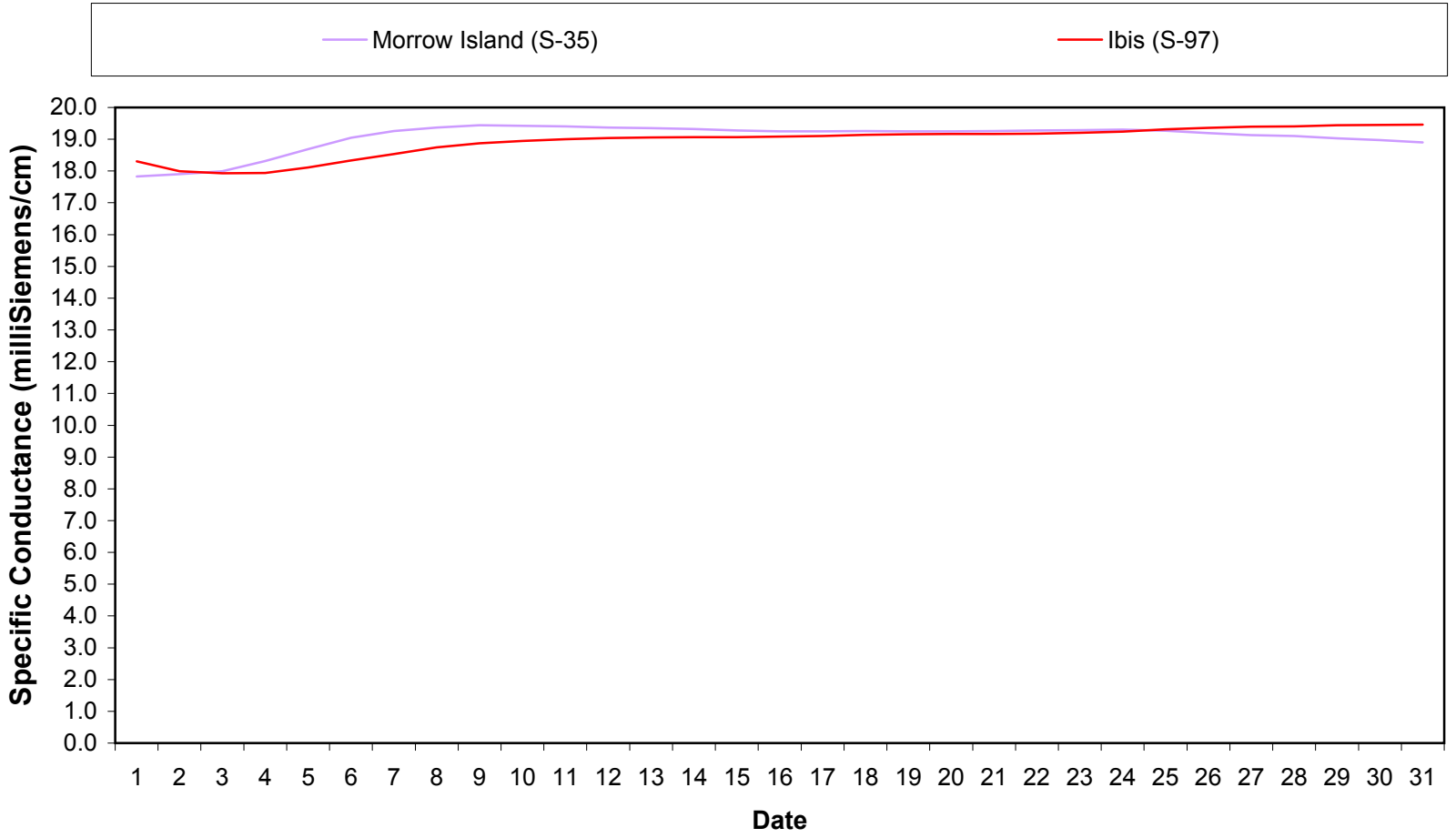


Figure 3. Daily Net Delta Outflow Index For October 2001*

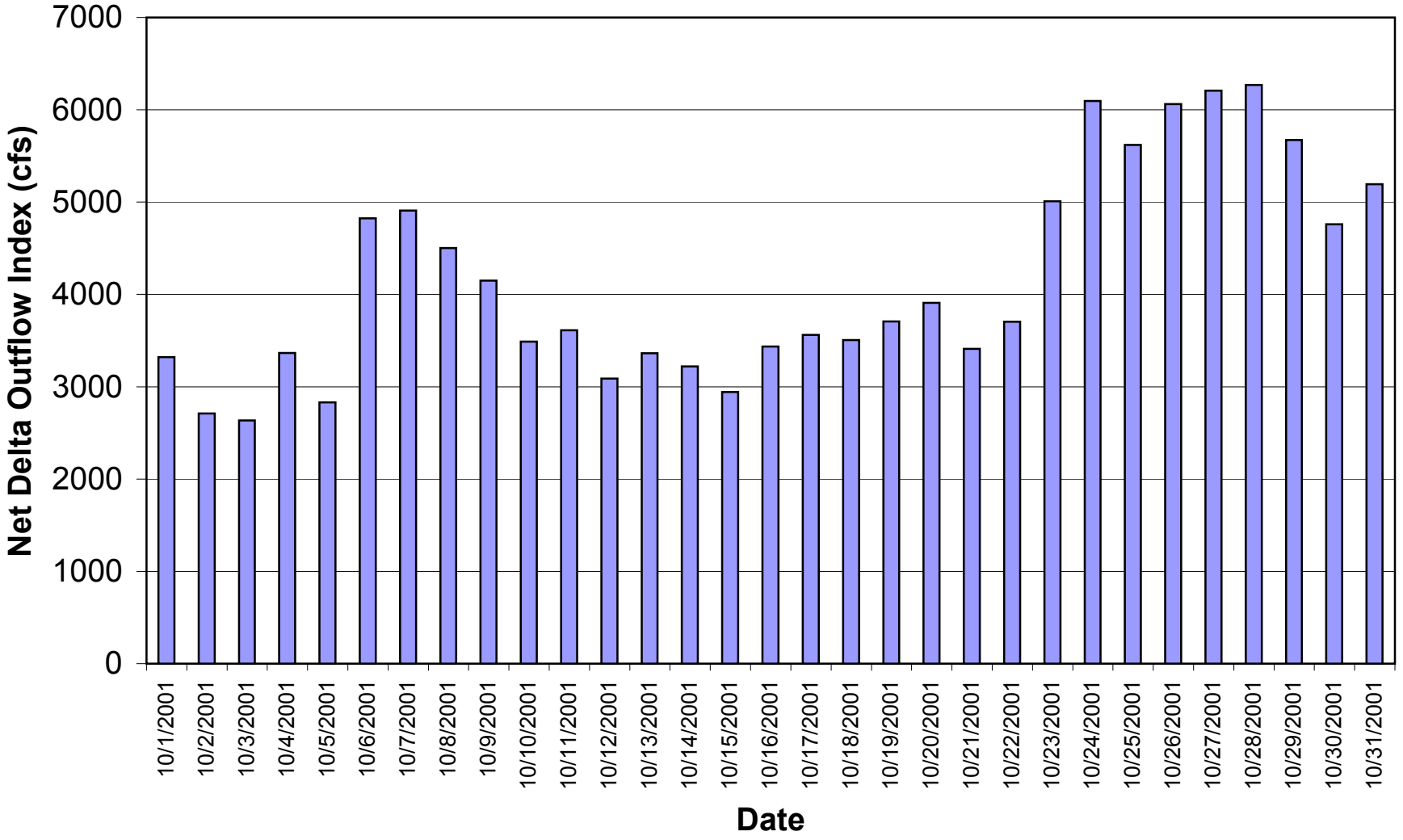
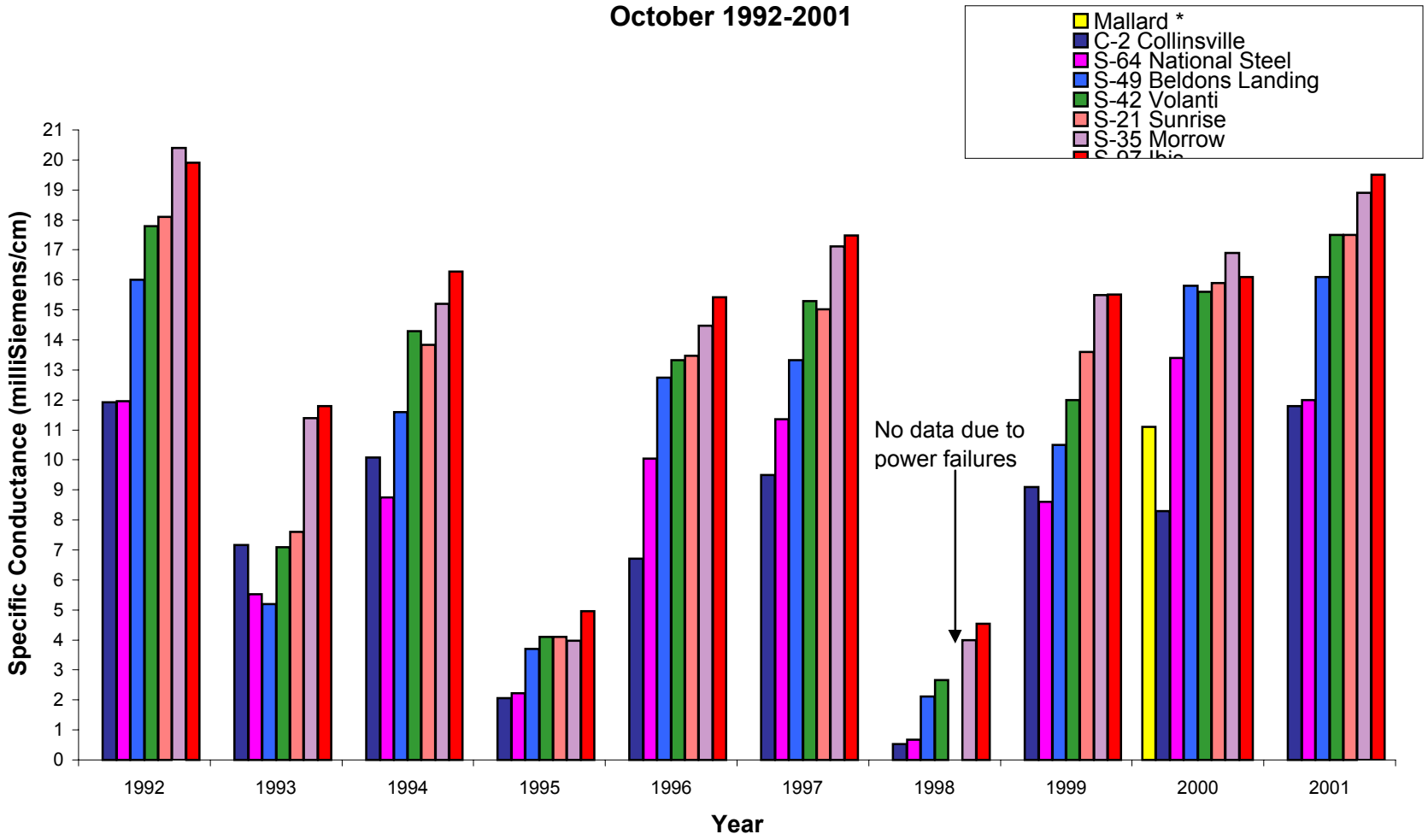
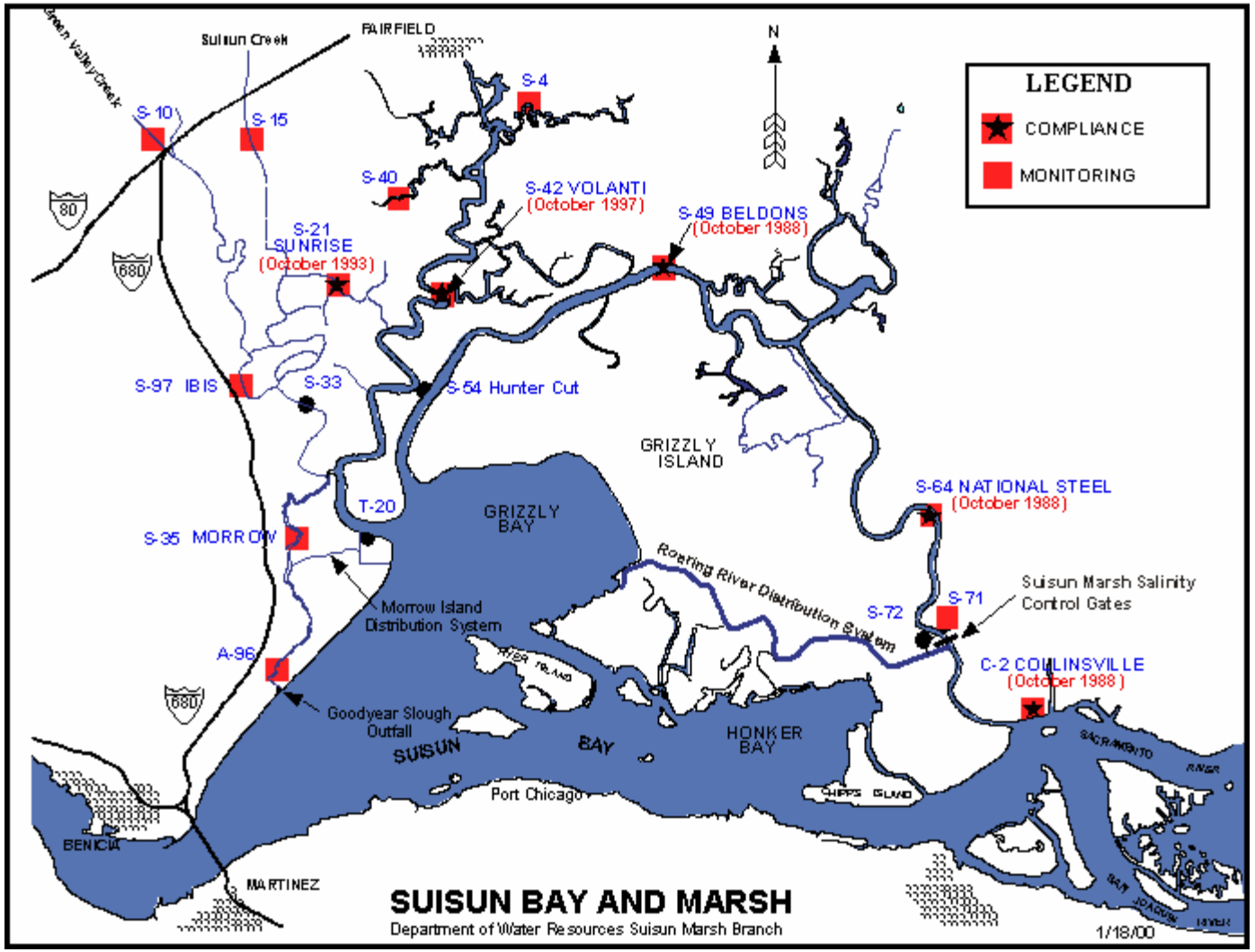


Figure 4. Monthly Mean Specific Conductance at High Tide: Comparison of Monthly Values for Selected Stations October 1992-2001



* Beginning in 2000.

Figure 5


LEGEND
COMPLIANCE
MONITORING
N
Suisun Creek
FAIRFIELD
S-10
S-15
S-4
S-40
S-42 VOLANTI
(October 1997)
S-49 BELDONS
(October 1988)
S-21
SUNRISE
(October 1993)
S-97 IBIS
S-33
S-54 Hunter Cut
GRIZZLY
ISLAND
S-64 NATIONAL STEEL
(October 1988)
T-20
GRIZZLY
BAY
S-35 MORROW
Roaring River Distribution System
Suisun Marsh Salinity
Control Gates
S-72
S-71
Morrow Island
Distribution System
A-96
C-2 COLLINSVILLE
(October 1988)
Goodyear Slough
Outfall
SUISUN
BAY
HONKER
BAY
Port Chicago
BENICIA
MARTINEZ
SUISUN BAY AND MARSH
Department of Water Resources Suisun Marsh Branch
1/18/00